

We claim:

1. A belt cartridge for use with a belt drive platform,
wherein the belt drive platform comprises a housing, a motor
disposed within the housing and a drive spool operatively
5 connected to the motor, and wherein the belt cartridge
comprises:

a belt suitable for performing compressions on a patient;

a cover plate, said cover plate provided with a means for
releasably attaching the cover plate to the belt drive
10 platform, wherein the belt is operably attached to the
cover plate; and

a means for releasably attaching the belt to the drive
spool.

2. A system for performing chest compressions on a patient,
15 said system comprising:

a compression belt cartridge comprising:

a belt, said belt having a width corresponding to the
superior-inferior height of the patient when the
belt is disposed around the patient, said belt also
20 having a length corresponding to the medial-lateral
circumference of the patient when the belt is
disposed around the patient;

said belt having pull straps, a first load
distribution section attached to a first end of the
25 pull straps, and a second load distribution section
attached to a second end of the pull straps;

wherein the first load distribution section and the second load distribution are wider than the pull straps; and

5 a means for tightening the belt, wherein the compression belt cartridge is attachable to the means for tightening the belt.

3. The system of 2 wherein the belt further comprises a first transition section attached to the first load distribution section and to the pull straps, and a second transition section
10 attached to the second load distribution section and to the pull straps, wherein the second transition section is opposite the first transition section.

4. The system of claim 3 wherein the first and second transition sections have a trapezoidal shape.

15 5. The system of claim 3 wherein the belt cartridge further comprises a first reinforcing plate attached to the first transition section and a second reinforcing plate attached to the second transition section.

6. The system of claim 3 wherein:
20 the system further comprises a belt drive platform;
the means for tightening the belt is disposed within the belt drive platform; and
the belt cartridge further comprises a cover plate, said cover plate removably attachable to the belt drive
25 platform, and wherein the belt is operably attachable to the cover plate.

7. The system of claim 3 further comprising a housing suitable for supporting the patient during compressions, wherein the means for tightening the belt is operably attached to and disposed within the housing and wherein the cover plate is
5 removably attachable to the housing.
8. The system of claim 3 wherein the belt cartridge further comprises a compression pad attached to the first load distribution section.
9. The system of claim 3 wherein the belt cartridge further
10 comprises hook and loop fasteners disposed on the first and second load distribution sections such that the first and second load distribution sections may be secured to each other over the chest of the patient.
10. The system of claim 9 wherein the belt cartridge further
15 comprises an eyelet attached to the first load distribution section and a peg attached to the second load distribution section, wherein the eyelet is sized and dimensioned to receive the peg and wherein the peg may be inserted into the eyelet when the first and second load distribution sections are secured over
20 the chest of the patient.
11. The system of claim 8 further comprising a means for determining if the peg is inserted into the eyelet.
12. The system of claim 11 further comprising a means for determining if the peg is inserted into the eyelet.
- 25 13. The system of claim 3 wherein the belt comprises at least one layer of unidirectional fibers held together with a resin.
14. The system of claim 3 wherein:

the belt comprises a plurality of layers and each layer comprises a plurality of fibers held together by a resin;

all of the fibers composing any given layer are oriented along one direction; and

5 the orientation of the fibers of one layer is different from the orientation of the fibers of a second layer.

15. The system of claim 2 wherein the compression belt cartridge is removably attachable to the means for tightening the belt.

10 16. A system for performing chest compressions on a patient, said system comprising:

a housing suitable for supporting the patient during compressions;

a compression belt cartridge comprising:

15 a belt, said belt having a width corresponding to the superior-inferior height of the patient when the belt is disposed around the patient, said belt also having a length corresponding to the medial-lateral circumference of the patient when the belt is
20 disposed around the patient;

said belt having pull straps, a first load distribution section attached to a first end of the pull straps, and a second load distribution section attached to a second end of the pull straps;

25 said belt having a first transition section attached to the first load distribution section and to the pull straps, and a second transition section

attached to the second load distribution section and
to the pull straps, wherein the second transition
section is opposite the first transition section,
and where the first and second transition sections
5 have a trapezoidal shape;

wherein the first load distribution section and the
second load distribution section are wider than the
pull straps;

a first reinforcing plate attached to the first
10 transition section and a second reinforcing plate
attached to the second transition section;

a cover plate attachable to the housing;

a compression pad attached to the first load
distribution section;

15 hook and loop fasteners disposed on the first and
second load distribution sections such that the
first and second load distribution sections may be
secured to each other over the chest of the patient;

an eyelet attached to the first load distribution
20 section and a peg attached to the second load
distribution section, wherein the eyelet is sized
and dimensioned to receive the peg and wherein the
peg may be inserted into the eyelet when the first
and second load distribution sections are secured
25 over the chest of the patient; and

a means for tightening the belt operably connected to and
disposed within the housing, wherein the pull straps are
attachable to the means for tightening the belt.

17. The system of claim 16 wherein the belt comprises at least one layer of unidirectional fibers held together with a resin.

18. The system of claim 16 wherein the cover plate is removably attachable to the housing and wherein the pull straps are

5 removably attachable to the means for tightening the belt:

the belt comprises a plurality of layers and each layer comprises a plurality of fibers held together by a resin;

all of the fibers composing any given layer are oriented along one direction; and

10 the orientation of the fibers of one layer is different from the orientation of the fibers of a second layer.

19. The system of claim 16 further comprising a means for determining if the peg is inserted into the eyelet.

20. The system of claim 16 wherein the pull straps are
15 removably attachable to the means for tightening the belt and wherein the cover plate is removably attachable to the housing.

21. A method of performing chest compressions on a patient, said method comprising the steps of:

20 providing a system for performing chest compressions, said system comprising:

a compression belt cartridge comprising:

a belt, said belt having a width corresponding to the superior-inferior height of the patient when the belt is disposed around the patient,
25 said belt also having a length corresponding to

the medial-lateral circumference of the patient
when the belt is disposed around the patient;

5 said belt having pull straps, a first load
distribution section attached to a first end of
the pull straps, and a second load distribution
section attached to a second end of the pull
straps;

10 wherein the first load distribution section and
the second load distribution are wider than the
pull straps; and

a means for tightening the belt, wherein the
compression belt cartridge is attachable to the
means for tightening the belt;

15 attaching the load distribution sections of the belt to
each other and placing the load distribution sections
over the chest of the patient; and

tightening the belt to compress the chest of the patient.

22. The method of claim 21 comprising the further steps of:

20 detaching the load distribution sections of the belt from
each other and removing the load distribution sections
from the patient;

detaching the belt cartridge from the means for tightening
the belt;

25 providing a second belt cartridge, said second belt
cartridge comprising:

a second belt, said second belt having a width corresponding to the superior-inferior height of the patient when the second belt is disposed around the patient, said second belt also
5 having a length corresponding to the medial-lateral circumference of the patient when the second belt is disposed around the patient;

said belt having a second set of pull straps, a third load distribution section attached to a first end of the second set of pull straps, and
10 a fourth load distribution section attached to a second end of the second set of pull straps;

wherein the third load distribution section and the fourth load distribution are wider than the
15 second set of pull straps;

attaching the second belt cartridge to the means for tightening the belt;

attaching the third and fourth load distribution sections of the second belt to each other and placing the third
20 and fourth load distribution sections of the second belt over the chest of the patient; and

tightening the second belt to compress the chest of the patient.

23. A method of performing chest compressions on a patient,
25 said method comprising the steps of:

providing a system for performing chest compressions on a patient, said system comprising:

a housing suitable for supporting the patient during compressions;

a compression belt cartridge comprising:

5 a belt, said belt having a width corresponding to the superior-inferior height of the patient when the belt is disposed around the patient, said belt also having a length corresponding to the medial-lateral circumference of the patient when the belt is disposed around the patient;

10 said belt having pull straps, a first load distribution section attached to a first end of the pull straps, and a second load distribution section attached to a second end of the pull straps;

15 said belt having a first transition section attached to the first load distribution section and to the pull straps, and a second transition section attached to the second load distribution section and to the pull straps,
20 wherein the second transition section is opposite the first transition section, and where the first and second transition sections have a trapezoidal shape;

25 wherein the first load distribution section and the second load distribution are wider than the width of the pull straps;

 a first reinforcing plate attached to the first transition section and a second reinforcing

plate attached to the second transition
section;

a cover plate removably attachable to the
housing;

5 a compression pad attached to the first load
distribution section;

hook and loop fasteners disposed on the first and
second load distribution sections such that the
first and second load distribution sections may
10 be secured to each other over the chest of the
patient;

an eyelet attached to the first load distribution
section and a peg attached to the second load
distribution section, wherein the eyelet is
15 sized and dimensioned to receive the peg and
wherein the peg may be inserted into the eyelet
when the first and second load distribution
sections are secured over the chest of the
patient;

20 a means for tightening the belt operably
connected to and disposed within the housing,
wherein the pull straps are removably
attachable to the means for tightening the
belt;

25 placing the patient on the housing;

attaching the load distribution sections of the belt to
each other and placing the load distribution sections
over the chest of the patient; and

tightening the belt to compress the chest of the patient.

24. The method of claim 23 comprising the further steps of:

detaching the load distribution sections of the belt from
each other and removing the load distribution sections
5 from the patient;

detaching the cover plate from the housing and detaching
the belt from the means for tightening the belt;

providing a second belt cartridge, said second belt
cartridge comprising:

10 a second belt, said second belt having a width
corresponding to the superior-inferior height
of the patient when the second belt is disposed
around the patient, said second belt also
having a length corresponding to the medial-
15 lateral circumference of the patient when the
second belt is disposed around the patient;

said belt having a second set of pull straps, a
third load distribution section attached to a
first end of the second set of pull straps, and
20 a fourth load distribution section attached to
a second end of the second set of pull straps;

said second belt having a third transition
section attached to the third load distribution
section and to the second set of pull straps,
25 and a fourth transition section attached to the
fourth load distribution section and to the
second set of pull straps, wherein the fourth
transition section is opposite the third

transition section, and where the third and fourth transition sections have a trapezoidal shape;

wherein the third load distribution section and the fourth load distribution are wider than the second set of pull straps;

a third reinforcing plate attached to the third transition section and a fourth reinforcing plate attached to the fourth transition section;

a second cover plate removably attachable to the housing;

a second compression pad attached to the third load distribution section;

hook and loop fasteners disposed on the third and fourth load distribution sections such that the third and fourth load distribution sections may be secured to each other over the chest of the patient;

a second eyelet attached to the third load distribution section and a second peg attached to the fourth load distribution section, wherein the second eyelet is sized and dimensioned to receive the second peg and wherein the second peg may be inserted into the second eyelet when the third and fourth load distribution sections are secured over the chest of the patient;

attaching the second belt to the means for tightening the belt and attaching the second cover plate of the second belt cartridge to the housing;

5 attaching the third and fourth load distribution sections of the second belt to each other and placing the third and fourth load distribution sections of the second belt over the chest of the patient; and

tightening the second belt to compress the chest of the patient.